

Application No. 10/551,831  
**Amendment AF** dated Jan. 12, 2010  
In Reply to final Action of Nov. 12, 2009  
Attorney Docket No. 1217-052758

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application.

#### **Listing of Claims:**

1-3. (Canceled)

4. (Currently Amended) A process for producing modified cycloolefin copolymers by chemically modifying a base polymer being a cycloolefin copolymer with an ethylene chain through uniform addition of a modifier compound having a functional group and a hydrogen-donating group or having a functional group and an alkyl halide group, the process comprising:

adding 1 to 30 parts by weight of the modifier compound and 20 to 300 parts by weight of an organic solvent to 100 parts by weight of the base polymer in an inactive atmosphere with stirring to give a solution;

while heating the solution at 70 to 95°C with stirring, adding dropwise 7 to 50 parts by weight of an organic-solvent solution containing 2 to 25 parts by weight of a hydrogen-abstrating peroxide compound dissolved therein, wherein the peroxide compound is added in an amount such that a ratio of the peroxide compound to a polymerizable unsaturated group in the modifier compound in terms of number of moles of radicals is 0.7-2.5/1, thereby adding the functional group to an ethylene chain and a main-chain cycloolefin chain of the base polymer to yield a modified cycloolefin copolymer; and

thermally aging the copolymer at 90 to 160°C with stirring for a predetermined time followed by cooling to room temperature to achieve a polymer concentration of 10 to 80 wt%,

wherein the process achieves a distribution degree of the modified cycloolefin copolymer in the base polymer in the range of 0.01 to 0.04 as expressed in distribution correlation coefficient (DR) defined by the relation (1) below:

$$(DR) = [(RI) - (UV)]^2 \cdots (1)$$

wherein (RI) and (UV) are dispersion indices of molecular weight distributions (= weight-average molecular weight/number-average molecular weight) determined by simultaneous detection based on change of refractive index (RI) and detection based on a UV absorption spectrum characteristic of the functional groups added, and

wherein the peroxide compound is benzoyl peroxide.

5. (Original) The process for producing modified cycloolefin copolymers according to claim 4, wherein the functional group is added at a stoichiometric percentage of 20 to 90% of all the replaceable hydrogen atoms in ethylene chains and main-chain cycloolefin chains of the base polymer.

6. (Canceled)

7. (Previously Presented) The process for producing modified cycloolefin copolymers according to claim 4, wherein the functional group is at least one group selected from the group consisting of carboxyl group, hydroxyl group, amino groups, imide groups, amide groups, epoxy groups, alkoxyalkyl groups, hydroxyalkyl groups and alkoxysilyl groups.

8. (Previously Presented) The process for producing modified cycloolefin copolymers according to claim 4, wherein the hydrogen-donating group is vinyl group or (meth)acryloyl group.

9-20. (Canceled)

21. (Previously Presented) The process for producing modified cycloolefin copolymers according to claim 5, wherein the functional group is at least one group selected from the group consisting of carboxyl group, hydroxyl group, amino groups, imide groups, amide groups, epoxy groups, alkoxyalkyl groups, hydroxyalkyl groups and alkoxysilyl groups.

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22. (Canceled)

23. (Previously Presented) The process for producing modified cycloolefin copolymers according to claim 5, wherein the hydrogen-donating group is vinyl group or (meth)acryloyl group.

24. (Canceled)

25. (Previously Presented) The process for producing modified cycloolefin copolymers according to claim 7, wherein the hydrogen-donating group is vinyl group or (meth)acryloyl group.

26-34. (Canceled)